Welcome to DialogClassic Web(tm)

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 Dialog level 05.04.04D
Last logoff:  20may05 15:50:57
Logon file001 24may05 14:50:19
          *** ANNOUNCEMENT ***
                    ***
--UPDATED: Important Notice to Freelance Authors--
See HELP FREELANCE for more information
                    ***
NEW FILES RELEASED
***FDAnews (File 182)
***German Patents Fulltext (File 324)

***Beilstein Abstracts (File 393)
***Beilstein Facts (File 390)
***Beilstein Reactions (File 391)
                    ***
RESUMED UPDATING
***Canadian Business and Current Affairs (262)
***CorpTech (559)
                    ***
REMOVED

***Health News Daily (43)
***FDC Reports Gold Sheet/Silver Sheet (184)
***FDC Reports (186/187) ***NDA Pipeline: New Drugs (189)
                    ***
     >>> Enter BEGIN HOMEBASE for Dialog Announcements <<<
     >>>    of new databases, price changes, etc.      <<<
                    ****
KWIC is set to 50.
HILIGHT set on as ' '
 * * *

File   1:ERIC 1966-2004/Jul 21
       (c) format only 2004 The Dialog Corporation
 *File   1: Updates suspended by ERIC until
Q2, 2005

      Set  Items  Description
      ---  -----  -----------
Cost is in DialUnits
?

B 155, 159, 5, 73
       24may05 14:50:48 User259876 Session D754.1
            $0.80    0.228 DialUnits File1
     $0.80  Estimated cost File1
     $0.13  INTERNET
     $0.93  Estimated cost this search
     $0.93  Estimated total session cost   0.228 DialUnits

SYSTEM:OS  - DIALOG OneSearch
  File 155:MEDLINE(R) 1951-2005/May W4
         (c) format only 2005 The Dialog Corp.
  File 159:Cancerlit 1975-2002/Oct
         (c) format only 2002 Dialog Corporation
 *File 159: Cancerlit is no longer updating.
Please see HELP NEWS159.
  File   5:Biosis Previews(R) 1969-2005/May W3
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         (c) 2005 BIOSIS
  File  73:EMBASE 1974-2005/May W3
         (c) 2005 Elsevier Science B.V.

      Set  Items  Description
      ---  -----  -----------
?

S (HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) (W) STEM (W) CELL?)
Processing
            4625  HES
             197  HEG
           11676  PLURIPOTENT
           13214  PRIMORDIAL
           62987  PRIMITIVE
          415971  STEM
        10431417  CELL?
            4603  ((PLURIPOTENT OR PRIMORDIAL) OR PRIMITIVE)(W)STEM(W)CELL?
      S1    9369  (HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE)
                  (W) STEM (W) CELL?)
?

S (MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIATION)
           56620  MESENCHYMAL
          415971  STEM
           72500  DIFFERENTIATING
          750768  DIFFERENTIATION
      S2    1961  (MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR
                  DIFFERENTIATION)
?

S (CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
           24919  CARDIOMYOCYTE?
           72500  DIFFERENTIATING
          750768  DIFFERENTIATION
      S3    1470  (CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
?

S S1 AND S2
            9369  S1
            1961  S2
      S4      29  S1 AND S2
?

S S1 AND S3
            9369  S1
            1470  S3
      S5      49  S1 AND S3
?

S S4 AND S5
              29  S4
              49  S5
      S6       0  S4 AND S5
?


Set     Items   Description
S1       9369   (HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) -
            (W) STEM (W) CELL?)
```

```
S2       1961   (MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIA-
           TION)
S3       1470   (CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
S4         29   S1 AND S2
S5         49   S1 AND S3
S6          0   S4 AND S5
?

S S4 OR S5
              29  S4
              49  S5
      S7      78  S4 OR S5
?

S S7 AND (CD90)
              78  S7
             559  CD90
      S8       2  S7 AND (CD90)
?

RD
...completed examining records
      S9       2  RD (unique items)
?

T S9/3,K/ALL
```

9/3,K/1 (Item 1 from file: 155)

```
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

15037198   PMID: 14584050
```

Non-hematopoietic human bone marrow contains long-lasting, pluripotential mesenchymal stem cells.

Suva Domizio; Garavaglia Guido; Menetrey Jacques; Chapuis Bernard; Hoffmeyer Pierre; Bernheim Laurent; Kindler Vincent

Orthopedic Surgery Service, Geneva University Hospital, Geneva, Switzerland.

Journal of cellular physiology (United States) Jan 2004, 198 (1) p110-8, ISSN 0021-9541 Journal Code: 0050222

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

... MSC. Ex vivo, 99% of nhBM cells were CD45(+) leukocytes. After culture, leukocytes were replaced by a homogeneous layer of adherent CD45(-) CD14(-) CD34(-) CD11b(-) **CD90** (+) HLA-ABC(+) cells. Culture doubling time (mean = 4 days, range 1.6-6.7 days) was not correlated with patient age (27-81 years, n...

... could be differentiated in vitro into adipocytes and chondrocytes. Moreover, a small fraction of nhBM cells spontaneously expressed MyoD1 and formed myotubes, suggesting that myogenic **differentiation** also occurred. nhBM contained clonogenic cells whose frequency (1/13,000), doubling time (2.1 days), and maximal amplification (up to 10(6)-fold) were...

Descriptors: *Bone Marrow Cells--metabolism--ME; *Hematopoiesis --physiology--PH; *Mesoderm--cytology--CY; * **Pluripotent Stem Cells** --physiology--PH...; Division; Cells, Cultured; Chondrocytes--cytology--CY; Chondrocytes--metabolism--ME; Femur--cytology--CY; Femur--metabolism--ME;

Humans; Mesoderm--metabolism--ME; Middle Aged; Myoblasts--metabolism--ME; Phenotype; **Pluripotent Stem Cells** --cytology--CY

9/3,K/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14672659 PMID: 12604402
Heterogeneity among human bone marrow-derived mesenchymal stem cells and neural progenitor cells.
Vogel Wichard; Grunebach Frank; Messam Conrad A; Kanz Lothar; Brugger Wolfram; Buhring Hans-Jorg
Department of Internal Medicine II, Division of Hematology and Oncology, University of Tubingen, Otfried-Muller-Str. 10, 72076 Tubingen, Germany.
Haematologica (Italy) Feb 2003, 88 (2) p126-33, ISSN 0390-6078 Journal Code: 0417435
Publishing Model Print; Comment in Haematologica. 2003 Feb;88(2) 121; Comment in PMID 12604398
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... immunocytochemistry using a variety of unique monoclonal antibodies (57D2, W4A5, W8B2) generated in our laboratory. In addition, the expression profile of CD antigens and intracellular **differentiation** markers was analyzed. RESULTS. We show for the first time that CD10+, CD13+, CD61+, **CD90** +, CD105 (endoglin)+, CD45-, CD34-, and CD133- MSC also expressed CD109, CD140b (PDGF-RB), CD164, and CD172a (SIRPa). In addition, we found heterogeneity of MSC as...

... W8B2 antigen on distinct MSC subpopulations. Morphologically, these populations comprised small single cells and larger cells with polygonal appearance. NPC expressed high levels of CD56, **CD90** and nestin and moderate levels of CD15, W4A5, and 57D2 antigens. In contrast, CD133 and CD172 were found only on NPC subpopulations. INTERPRETATION AND CONCLUSIONS ...
Descriptors: *Mesoderm--cytology--CY; *Neurons--cytology--CY; * **Pluripotent Stem Cells** --cytology--CY; Antigens, CD--analysis--AN; Biological Markers--analysis--AN; Bone Marrow Cells; Humans; Immunophenotyping; Mesoderm--immunology--IM; Neurons--immunology--IM; **Pluripotent Stem Cells** --immunology--IM
?

Set	Items	Description
S1	9369	(HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) -(W) STEM (W) CELL?)
S2	1961	(MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIA-TION)
S3	1470	(CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
S4	29	S1 AND S2
S5	49	S1 AND S3
S6	0	S4 AND S5
S7	78	S4 OR S5
S8	2	S7 AND (CD90)
S9	2	RD (unique items)

?

```
S S7 AND (IMMUNOTOLERANT OR IMMUNOSUPPRESSANT OR TOLERANT OR TOLERIZING)
              78  S7
             215  IMMUNOTOLERANT
           63016  IMMUNOSUPPRESSANT
           48370  TOLERANT
             827  TOLERIZING
     S10       0  S7 AND (IMMUNOTOLERANT OR IMMUNOSUPPRESSANT OR TOLERANT
                  OR TOLERIZING)
?

RD S7
...examined 50 records  (50)
...completed examining records
     S11      47  RD S7 (unique items)
?

S S11 NOT PY>2000
              47  S11
         6872017  PY>2000
     S12       2  S11 NOT PY>2000
?

T S12/3,K/ALL
```

12/3,K/1 (Item 1 from file: 155)

DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

12713405 PMID: 10639728

Cardiac and skeletal muscle development in P19 embryonal carcinoma cells.

Skerjanc I S

Department of Biochemistry, University of Western Ontario, London, Canada.

Trends in cardiovascular medicine (UNITED STATES) Jul 1999, 9 (5) p139-43, ISSN 1050-1738 Journal Code: 9108337

Publishing Model Print

Document type: Journal Article; Review; Review, Tutorial

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Mouse P19 embryonal carcinoma cells are **pluripotent stem cells** that can be maintained in culture in an undifferentiated state or can be induced to differentiate in vitro into multiple cell types. P19 cells aggregated in the presence of dimethylsulfoxide differentiate into spontaneously beating **cardiomyocytes** and bipolar skeletal myocytes that exhibit the biochemical and physiologic properties of their embryonic equivalents. P19 cells can be readily manipulated genetically, resulting in the...
... a gene of interest. Because of this versatility, the P19 system is suited for examining the molecular mechanisms controlling the developmental decisions of stem cells **differentiating** into the skeletal or cardiac muscle lineage.

12/3,K/2 (Item 2 from file: 155)

DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

10315335 PMID: 8407716

Pluripotent mesenchymal stem cells reside within avian connective tissue

matrices.
Young H E; Ceballos E M; Smith J C; Mancini M L; Wright R P; Ragan B L; Bushell I; Lucas P A
Division of Basic Medical Science, Mercer University School of Medicine, Macon, Georgia 31207.
In vitro cellular & developmental biology. Animal (UNITED STATES) Sep 1993, 29A (9) p723-36, ISSN 1071-2690 Journal Code: 9418515
Contract/Grant No.: NICHD N01-HD-6-2915; HD; NICHD
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... Clonal analysis was performed to determine whether these morphologies were the result of a mixed population of lineage-committed stem cells or the differentiation of **pluripotent stem cells** or both. Putative stem cells from four tissues (skeletal muscle, dermis, atria, and ventricle) were isolated and cloned. Combined, 1158 clones were generated from the... ... of dexamethasone, cells from all clones differentiated in a time- and concentration-dependent manner into muscle, fat, cartilage, and bone. These results suggest that pluripotent **mesenchymal stem** cells are present within the connective tissues of skeletal muscle, dermis, and heart and may prove useful for studies concerning the regulation of stem cell **differentiation** , wound healing, and tissue restoration, replacement and repair.
?

Set	Items	Description
S1	9369	(HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) -(W) STEM (W) CELL?)
S2	1961	(MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIA-TION)
S3	1470	(CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
S4	29	S1 AND S2
S5	49	S1 AND S3
S6	0	S4 AND S5
S7	78	S4 OR S5
S8	2	S7 AND (CD90)
S9	2	RD (unique items)
S10	0	S7 AND (IMMUNOTOLERANT OR IMMUNOSUPPRESSANT OR TOLERANT OR TOLERIZING)
S11	47	RD S7 (unique items)
S12	2	S11 NOT PY>2000

?

(MESENCHYMAL (W) STEM) (S) (IMMUNOSUPPRESANT? OR TOLERIZING)
>>>When using accession numbers with KEEP in OneSearch, you
>>>must use the FROM option to specify a file number.
?

S (MESENCHYMAL (W) STEM) (S) (IMMUNOSUPPRESSANTS OR TOLERIZING OR TOLERANT OR TOLERA

56620	MESENCHYMAL
415971	STEM
6425	IMMUNOSUPPRESSANTS
827	TOLERIZING
48370	TOLERANT
377514	TOLERANCE
215	IMMUNOTOLERANT

```
     S13       27  (MESENCHYMAL (W) STEM) (S) (IMMUNOSUPPRESSANTS OR
                   TOLERIZING OR TOLERANT OR TOLERANCE OR IMMUNOTOLERANT)
?

?

RD
...completed examining records
     S14       14  RD (unique items)
?

S S14 AND (GRAFT? OR ALLOGRAFT? OR AUTOGRAFT?)
              14  S14
          549490  GRAFT?
          106422  ALLOGRAFT?
           22977  AUTOGRAFT?
     S15        8  S14 AND (GRAFT? OR ALLOGRAFT? OR AUTOGRAFT?)
?

RD
...completed examining records
     S16        8  RD (unique items)
?

T S16/3,K/ALL

  16/3,K/1     (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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17703150   PMID: 15846285
 Immunobiology of human mesenchymal stem cells and future use in
 hematopoietic stem cell transplantation.
  Le Blanc Katarina; Ringden Olle
  Biology of blood and marrow transplantation - journal of the American
Society for Blood and Marrow Transplantation (United States)  May 2005,
11 (5) p321-34,  ISSN 1083-8791  Journal Code: 9600628
  Publishing Model Print
  Document type: Journal Article
  Languages: ENGLISH
  Main Citation Owner: NLM
  Record type: In Data Review

  ... make them candidates for cellular therapy in an allogeneic setting.
They also have immunomodulatory effects, inhibit T-cell proliferation in
mixed lymphocyte cultures, prolong skin allograft survival, and may
decrease graft -versus-host disease (GVHD) when cotransplanted with
```

hematopoietic stem cells. MSCs induce their immunosuppressive effect via a soluble factor. Some candidates have been suggested, and...

...has been difficult to identify and isolate MSCs after transplantation in vivo. However, MSCs seem to enhance hematopoietic engraftment in recipients of autologous and allogeneic **grafts** . Recently, they were found to reverse grade IV acute GVHD of the gut and liver. No **tolerance** was induced, however. Controlled studies are warranted. Thus, in allogeneic stem cell transplantation, MSCs may be used for hematopoiesis enhancement, as GVHD prophylaxis, and for...

16/3,K/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

17691594 PMID: 15748434
[Effect of human bone marrow mesenchymal stem cell on allogeneic T lymphocyte phenotype in vitro]
Ning Hong-Mei; Jin Jian-Gang; Hu Jiang-Wei; Feng Kai; Chen Hu
Department of Hematopoietic Stem Cell Transplantation, Affiliated Hospital of Academy of Military Medical Sciences, Beijing 100039, China.
Zhongguo shi yan xue ye xue za zhi / Zhongguo bing li sheng li xue hui = Journal of experimental hematology / Chinese Association of Pathophysiology (China) Feb 2005, 13 (1) p43-9, ISSN 1009-2137 Journal Code: 101084424
Publishing Model Print
Document type: Journal Article
Languages: CHINESE
Main Citation Owner: NLM
Record type: In Process

The purpose was to study the effect of mesenchymal stem cell (MSC) on immune function, and to explore the new strategy to prevent **graft** versus host disease (GVHD) and host versus **graft** reaction (HVGR) in allogeneic bone marrow transplantation. MSCs from human bone marrow cells were isolated and cultured. The purity of MSCs were identified with the...
... MSCs pretreatment may be useful in the prevention of GVHD and HVGR in allogeneic bone marrow transplantation and provides a new strategy to induce transplantation **tolerance** .

16/3,K/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

17379935 PMID: 15494428
Human mesenchymal stem cells modulate allogeneic immune cell responses.
Aggarwal Sudeepta; Pittenger Mark F
Osiris Therapeutics, 2001 Aliceanna St, Baltimore, MD 21231, USA.
Blood (United States) Feb 15 2005, 105 (4) p1815-22, ISSN 0006-4971 Journal Code: 7603509
Publishing Model Print-Electronic
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... points, indicating a lack of immune recognition and clearance. As well, a role for bone marrow-derived MSCs in reducing the incidence and

severity of **graft** -versus-host disease (GVHD) during allogeneic transplantation has recently been reported; however, the mechanisms remain to be investigated. We examined the immunomodulatory functions of human...

...effector T cells (T helper 1 [T(H)1] and T(H)2), and natural killer (NK) cells to induce a more anti-inflammatory or **tolerant** phenotype. Specifically, the hMSCs caused mature DCs type 1 (DC1) to decrease tumor necrosis factor alpha (TNF-alpha) secretion and mature DC2 to increase interleukin...

... data offer insight into the interactions between allogeneic MSCs and immune cells and provide mechanisms likely involved with the in vivo MSC-mediated induction of **tolerance** that could be therapeutic for reduction of GVHD, rejection, and modulation of inflammation.

16/3,K/4 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

15466060 PMID: 15345288
Allogeneic bone marrow-derived flk-1+Sca-1- mesenchymal stem cells leads to stable mixed chimerism and donor-specific tolerance .
Deng Weimin; Han Qin; Liao Lianming; Li Changhong; Ge Wei; Zhao Zhigang; You Shengguo; Deng Hongye; Zhao Robert C H
Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences, School of Basic Medicine, Peking Union Medical College, Beijing, PR China.
Experimental hematology (Netherlands) Sep 2004, 32 (9) p861-7, ISSN 0301-472X Journal Code: 0402313
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Allogeneic bone marrow-derived flk-1+Sca-1- mesenchymal stem cells leads to stable mixed chimerism and donor-specific tolerance .
OBJECTIVE: To investigate the possibility of flk-1+Sca-1- bone marrow-derived mesenchymal stem cells (bMSCs) to induce stable mixed chimerism and donor-specific **graft tolerance** . METHODS: Allogeneic flk-1+Sca-1- bMSCs and syngeneic bone marrow (BM) cells were cotransplanted into lethally irradiated (8.5 Gy) recipient mice. FACS was...

...from recipient mice. RESULTS: More than 5% donor-derived CD3+ cells were detected in splenocytes of recipient mice. Long-term survival of donor-type skin **grafts** was observed. MLR and mitogen proliferative assays showed that recipient mice had low immunoresponse to donor cells but retained normal ConA-induced proliferative response compared...

... with allogeneic flk-1+Sca-1- bMSC transplantation, which leads to permanent donor-specific immunotolerance in allogeneic host and results in long-term allogeneic skin **graft** acceptance.

16/3,K/5 (Item 5 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14773209 PMID: 12732877
Engineering mesenchymal stem cells for immunotherapy.

Jorgensen C; Djouad F; Apparailly F; Noel D
Service d'Immuno-Rhumatologie, Hopital Lapeyronie, Montpellier, France.
Gene therapy (England) May 2003, 10 (10) p928-31, ISSN 0969-7128 Journal Code: 9421525
Publishing Model Print
Document type: Journal Article; Review; Review, Tutorial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... transplantation. This approach could reintroduce tolerance in autoimmune diseases and it has been applied to treat autoimmune diseases with, however, a great susceptibility of recurrence. **Mesenchymal stem** cells (MSCs) present within the bone marrow could be critical to the immunosuppressive effect of the treatment. This **tolerance** induction may be useful in allogeneic transplantations, where low incidence of **graft** -versus-host disease was observed when the hematopoietic **graft** was coinjected with MSCs. In this paper, we discuss the use of MSCs in different therapeutic strategies either as immunosuppressive agents or genetically engineered to...

16/3,K/6 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14595614 PMID: 12849006
Hematopoietic stem cell therapy for type 1 diabetes: induction of tolerance and islet cell neogenesis.
Burt Richard K; Oyama Yu; Traynor Ann; Kenyon Norma S
Department of Medicine, Northwestern University Medical Center, Chicago, IL 60611, USA. rburt@nmu.edu
Autoimmunity reviews (Netherlands) May 2002, 1 (3) p133-8, ISSN 1568-9972 Journal Code: 101128967
Publishing Model Print
Document type: Journal Article; Review; Review, Tutorial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... chronic disease with significant morbidity and mortality. Pancreas or islet cell transplantation is limited by a shortage of donors and chronic immune suppression to prevent **allograft** rejection. Consequently, interest exists in islet cell neogenesis from embryonic or mesenchymal stem cell as a possible cure for diabetes. However, unless **tolerance** to islet cells is re-established, diabetes treated by islet cell transplantation would remain a chronic disease secondary to immune suppression related morbidity. If islet cell **tolerance** could be re-induced, a major clinical hurdle to curing diabetes by islet cell neogenesis may be overcome. Recent studies suggest that adult hematopoietic stem cells (HSC) can reintroduce **tolerance** to auto-antigens. It is possible that HSC may also be able to switch lineage and, therefore, be a convenient source of stem cells for both inducing **tolerance** and islet cell regeneration.

16/3,K/7 (Item 7 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14558842 PMID: 12532188

Bone marrow transplantation: a new strategy for intractable diseases.
Ikehara Susumu
First Department of Pathology, Transplantation Center, Regeneration Research Center for Intractable Diseases, Kansai Medical University, Moriguchi City, Osaka, Japan. ikehara@takii.kmu.ac.jp
Drugs of today (Barcelona, Spain - 1998) (Spain) Feb 2002, 38 (2) p103-11, ISSN 0025-7656 Journal Code: 101160518
Publishing Model Print
Document type: Journal Article; Review; Review, Tutorial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... bone marrow transplantation) has a transient effect on autoimmune diseases, which recur three months after the bone marrow transplantation. However, bone marrow transplantation plus bone **grafts** (to recruit donor stromal cells) completely prevents the recurrence of autoimmune diseases in MRL/lpr mice. Donor-derived stromal cells (including mesenchymal stem cells) thus...
... a major histocompatibility complex restriction between hemopoietic stem cells and stromal cells. We have, however, found that the combination of bone marrow transplantation plus bone **grafts** has no effect on the treatment of autoimmune diseases in MRL/lpr mice, since MRL/lpr mice become more radiosensitive after the onset of lupus...

... findings suggest that intra-bone marrow injection-bone marrow transplantation can be used to treat intractable autoimmune diseases under reduced radiation doses without using any **immunosuppressants** .Intra-bone marrow injection-bone marrow transplantation seems to be the best strategy for allogeneic bone marrow transplantation: 1) no **graft** -versus-host disease develops even if T cells are not depleted from the bone marrow; 2) no **graft** failure occurs even if the dose of radiation as the conditioning for bone marrow transplantation is reduced to 5 Gy x 2; 3) hemopoietic recovery...

... perfusion method") for collecting bone marrow cells from the long bones (femur, humerus, etc.) without peripheral blood contamination. This method has various advantages: 1) no **graft** -versus-host disease develops even in cynomolgus monkeys, since the percentage of T cells in the bone marrow cells collected is less than 3%; 2) a large number of bone marrow cells can be collected quickly and safely; and 3) the bone marrow cells collected contain stromal cells including **mesenchymal stem** cells. We therefore believe that this method (intra-bone marrow injection-bone marrow transplantation in conjunction with the perfusion method) will become a powerful new...

16/3,K/8 (Item 1 from file: 73)
DIALOG(R)File 73:EMBASE

12783183 EMBASE No: 2004376809
Allogeneic bone marrow-derived flk-1SUP+Sca-1SUP- mesenchymal stem **cells leads to stable mixed chimerism and donor-specific** tolerance
Deng W.; Han Q.; Liao L.; Li C.; Ge W.; Zhao Z.; You S.; Deng H.; Zhao R.C.H.
AUTHOR EMAIL: chunhuaz@public.tpt.tj.cn
Experimental Hematology (EXP. HEMATOL.) (United States) 2004, 32/9 (861-867)
CODEN: EXHEB ISSN: 0301-472X

PUBLISHER ITEM IDENTIFIER: S0301472X04002085
DOCUMENT TYPE: Journal ; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 28

Allogeneic bone marrow-derived flk-1SUP+Sca-1SUP- mesenchymal stem **cells leads to stable mixed chimerism and donor-specific** tolerance

To investigate the possibility of flk-1SUP+Sca-1SUP- bone marrow-derived **mesenchymal stem** cells (bMSCs) to induce stable mixed chimerism and donor-specific **graft tolerance** .Allogeneic flk-1SUP+Sca-1SUP- bMSCs and syngeneic bone marrow (BM) cells were cotransplanted into lethally irradiated (8.5 Gy) recipient mice. FACS was used...

...from recipient mice.More than 5% donor-derived CD3 SUP+ cells were detected in splenocytes of recipient mice. Long-term survival of donor-type skin **grafts** was observed. MLR and mitogen proliferative assays showed that recipient mice had low immunoresponse to donor cells but retained normal ConA-induced proliferative response compared...

...allogeneic flk-1 SUP+Sca-1SUP- bMSC transplantation, which leads to permanent donor-specific immunotolerance in allogeneic host and results in long-term allogeneic skin **graft** acceptance. (c) 2004 International Society for Experimental Hematology. Published by Elsevier Inc.
?

```
Set     Items   Description
S1       9369   (HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) -
            (W) STEM (W) CELL?)
S2       1961   (MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIA-
            TION)
S3       1470   (CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
S4         29   S1 AND S2
S5         49   S1 AND S3
S6          0   S4 AND S5
S7         78   S4 OR S5
S8          2   S7 AND (CD90)
S9          2   RD (unique items)
S10         0   S7 AND (IMMUNOTOLERANT OR IMMUNOSUPPRESSANT OR TOLERANT OR
            TOLERIZING)
S11        47   RD S7 (unique items)
S12         2   S11 NOT PY>2000
S13        27   (MESENCHYMAL (W) STEM) (S) (IMMUNOSUPPRESSANTS OR TOLERIZI-
            NG OR TOLERANT OR TOLERANCE OR IMMUNOTOLERANT)
S14        14   RD (unique items)
S15         8   S14 AND (GRAFT? OR ALLOGRAFT? OR AUTOGRAFT?)
S16         8   RD (unique items)
?

S S14 NOT S16
              14  S14
               8  S16
     S17       6  S14 NOT S16
?

T S17/3,K/ALL

  17/3,K/1     (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
```

17750852 PMID: 15864738
T cell responses to allogeneic human mesenchymal stem cells: immunogenicity, tolerance , and suppression.
Klyushnenkova Elena; Mosca Joseph D; Zernetkina Valentina; Majumdar Manas K; Beggs Kirstin J; Simonetti Donald W; Deans Robert J; McIntosh Kevin R
Osiris Therapeutics, Inc., 2001 Aliceanna Street, Baltimore, 21231, MD, USA.
Journal of biomedical science (Switzerland) Jan-Feb 2005, 12 (1) p47-57, ISSN 1021-7770 Journal Code: 9421567
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: In Data Review

T cell responses to allogeneic human mesenchymal stem cells: immunogenicity, tolerance , and suppression.
... inert or potentially tolerogenic, T cells cultured with MSCs produced IFN-gamma and displayed secondary kinetics to restimulation with PBMCs, indicating alloantigen priming rather than **tolerance** induction by the MSCs. To determine whether MSCs suppressed alloreactive T cells, MSCs were added to primary mixed lymphocyte reaction (MLR) cultures. MSCs suppressed cell...

17/3,K/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

16544191 PMID: 15493129
[Growth behaviour of human mononuclear cells derived from bone marrow and cord blood on a collagen carrier for osteogenic regeneration]
Wachstumsverhalten humaner mononuklearer Zellen aus dem Knochenmark und Nabelschnurblut auf einem Kollagentrager zur osteogenen Regeneration.
Wild A; Jager M; Lensing-Hoehn S; Werner A; Krauspe R
Orthopadische Universitatsklinik Leipzig, Semmelweisstrasse 10, 04103 Leipzig. alexander.wild@medizin.uni-leipzig.de
Biomedizinische Technik. Biomedical engineering (Germany) Sep 2004, 49 (9) p227-32, ISSN 0013-5585 Journal Code: 1262533
Publishing Model Print
Document type: Journal Article ; English Abstract
Languages: GERMAN
Main Citation Owner: NLM
Record type: MEDLINE; Completed

...cell culture systems three-dimensional growth and calcification within the collagen fibres were seen after osteogenic stimulation. CONCLUSION: Human cord blood and bone marrow derived **mesenchymal stem** cell are capable of differentiating into osteoblasts after incubation with a collagen I/III biomaterial.

17/3,K/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

16390132 PMID: 15530878
Modification of the brain-derived neurotrophic factor gene: a portal to

transform mesenchymal stem cells into advantageous engineering cells for neuroregeneration and neuroprotection.
Zhao Lian-Xu; Zhang Jie; Cao Feng; Meng Ling; Wang Dong-Mei; Li Yan-Hua; Nan Xue; Jiao Wen-Cang; Zheng Min; Xu Xiao-Hu; Pei Xue-Tao
Department of Pathology and Pathophysiology, Shantou University Medical College, Shantou, Guangdong, 515031, PR China.
Experimental neurology (United States) Dec 2004, 190 (2) p396-406, ISSN 0014-4886 Journal Code: 0370712
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... mesenchymal stem cells (MSCs) are ideal seed cells for recruiting the loss of neural cells due to their strong proliferative capacity, easy acquisition, and considerable **tolerance** of genetic modifications. After transduction of brain-derived neurotrophic factor (BDNF) gene via recombinant retroviral vectors into the human MSCs, nearly 100% of cells expressed...

17/3,K/4 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

16133435 PMID: 15385815
Mesenchymal stem cell content of human vertebral bone marrow.
Ahrens Norbert; Tormin Ariane; Paulus Margit; Roosterman Daniela; Salama Abdulgabar; Krenn Veit; Neumann Ulf; Scheding Stefan
Institute for Transfusion Medicine, Charite Campus Virchow-Klinikum, Berlin, Germany. norbert.ahrens@charite.de
Transplantation (United States) Sep 27 2004, 78 (6) p925-9, ISSN 0041-1337 Journal Code: 0132144
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... MSCs) are capable of down-regulating alloimmune responses and promoting the engraftment of hematopoietic stem cells. MSCs may therefore be suitable for improving donor-specific **tolerance** induction in solid-organ transplantation. Cells from cadaveric vertebral bone marrow (V-BM), aspirated iliac crest-BM, and peripheral blood progenitor cells were compared. Cells...

17/3,K/5 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2005 BIOSIS. All rts. reserv.

0015048377 BIOSIS NO.: 200400419166
Mesenchymal stem cells as immunosuppressants
AUTHOR: Mosca Joseph D (Reprint); McIntosh Kevin R
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1286 (4): Sep. 28, 2004 2004
MEDIUM: e-file
PATENT NUMBER: US 6797269 PATENT DATE GRANTED: September 28, 2004 20040928
PATENT CLASSIFICATION: 424-1841 PATENT ASSIGNEE: Osiris Therapeutics, Inc.

PATENT COUNTRY: USA
ISSN: 0098-1133 _(ISSN print)
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Mesenchymal stem cells as immunosuppressants

17/3,K/6 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0014781401 BIOSIS NO.: 200400148062
Toward safe and efficient hemophilia A gene therapy.
AUTHOR: Hawley Robert G (Reprint); Moayeri Morvarid (Reprint); Ramezani Ali (Reprint); Morgan Richard A; Hawley Teresa S (Reprint)
AUTHOR ADDRESS: Holland Laboratory, American Red Cross, Rockville, MD, USA **USA
JOURNAL: Blood 102 (11): p742a November 16, 2003 2003
MEDIUM: print
CONFERENCE/MEETING: 45th Annual Meeting of the American Society of Hematology San Diego, CA, USA December 06-09, 2003; 20031206
SPONSOR: American Society of Hematology
ISSN: 0006-4971
DOCUMENT TYPE: Meeting; Meeting Poster; Meeting Abstract
RECORD TYPE: Abstract
LANGUAGE: English

...ABSTRACT: of inhibitory antibodies. By comparison, the use of hematopoietic stem cells as the target population may prevent inhibitor formation to recombinant fVIII by inducing immune **tolerance** during lympho-myeloid reconstitution. To test this possibility, primary bone marrow cells from immunocompetent (E16; fVIII exon 16 disrupted) and immunocompromised (E12; fVIII exon 16...

...analyses of the transplanted E16 immunocompetent hemophilic mice, which seek to determine whether the nonmyeloablative (mini) transplant conditions employed are sufficient for establishment of immune **tolerance** and sustained amelioration of disease.
?

Set	Items	Description
S1	9369	(HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) -(W) STEM (W) CELL?)
S2	1961	(MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIA-TION)
S3	1470	(CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
S4	29	S1 AND S2
S5	49	S1 AND S3
S6	0	S4 AND S5
S7	78	S4 OR S5
S8	2	S7 AND (CD90)
S9	2	RD (unique items)
S10	0	S7 AND (IMMUNOTOLERANT OR IMMUNOSUPPRESSANT OR TOLERANT OR TOLERIZING)
S11	47	RD S7 (unique items)
S12	2	S11 NOT PY>2000
S13	27	(MESENCHYMAL (W) STEM) (S) (IMMUNOSUPPRESSANTS OR TOLERIZI-

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             NG OR TOLERANT OR TOLERANCE OR IMMUNOTOLERANT)
S14         14   RD (unique items)
S15          8   S14 AND (GRAFT? OR ALLOGRAFT? OR AUTOGRAFT?)
S16          8   RD (unique items)
S17          6   S14 NOT S16
?

S S7 AND (THERAPY OR TREATMENT OR (TISSUE (W) REGENERATION))
               78  S7
          5890545  THERAPY
          5194340  TREATMENT
          2892193  TISSUE
           179570  REGENERATION
             8562  TISSUE(W)REGENERATION
     S18       29  S7 AND (THERAPY OR TREATMENT OR (TISSUE (W)
                   REGENERATION))
?

RD
...completed examining records
     S19       19  RD (unique items)
?


Set     Items   Description
S1       9369   (HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) -
            (W) STEM (W) CELL?)
S2       1961   (MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIA-
            TION)
S3       1470   (CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
S4         29   S1 AND S2
S5         49   S1 AND S3
S6          0   S4 AND S5
S7         78   S4 OR S5
S8          2   S7 AND (CD90)
S9          2   RD (unique items)
S10         0   S7 AND (IMMUNOTOLERANT OR IMMUNOSUPPRESSANT OR TOLERANT OR
             TOLERIZING)
S11        47   RD S7 (unique items)
S12         2   S11 NOT PY>2000
S13        27   (MESENCHYMAL (W) STEM) (S) (IMMUNOSUPPRESSANTS OR TOLERIZI-
             NG OR TOLERANT OR TOLERANCE OR IMMUNOTOLERANT)
S14        14   RD (unique items)
S15         8   S14 AND (GRAFT? OR ALLOGRAFT? OR AUTOGRAFT?)
S16         8   RD (unique items)
S17         6   S14 NOT S16
S18        29   S7 AND (THERAPY OR TREATMENT OR (TISSUE (W) REGENERATION))
S19        19   RD (unique items)
?

S S19 NOT S14
              19  S19
              14  S14
     S20      19  S19 NOT S14
?

T S20/3,K/ALL

  20/3,K/1     (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
```

17403732 PMID: 15448703

Electromechanical integration of cardiomyocytes derived from human embryonic stem cells.

Kehat Izhak; Khimovich Leonid; Caspi Oren; Gepstein Amira; Shofti Rona; Arbel Gil; Huber Irit; Satin Jonathan; Itskovitz-Eldor Joseph; Gepstein Lior

The Sohnis Family Research Laboratory for the Regeneration of Functional Myocardium, Department of Biophysics and Physiology, the Bruce Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, P.O. Box 9649, Haifa, Israel.

Nature biotechnology (United States) Oct 2004, 22 (10) p1282-9, ISSN 1087-0156 Journal Code: 9604648

Publishing Model Print-Electronic; Comment in Nat Biotechnol. 2004 Oct;22(10) 1237-8; Comment in PMID 15470458

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Cell **therapy** is emerging as a promising strategy for myocardial repair. This approach is hampered, however, by the lack of sources for human cardiac tissue and by the absence of direct evidence for functional integration of donor cells into host tissues. Here we investigate whether cells derived from human embryonic stem (**hES**) cells can restore myocardial electromechanical properties. **Cardiomyocyte** cell grafts were generated from **hES** cells in vitro using the embryoid body **differentiating** system. This tissue formed structural and electromechanical connections with cultured rat **cardiomyocytes** . In vivo integration was shown in a large-animal model of slow heart rate. The transplanted **hES** cell-derived **cardiomyocytes** paced the hearts of swine with complete atrioventricular block, as assessed by detailed three-dimensional electrophysiological mapping and histopathological examination. These results demonstrate the potential of **hES** -cell **cardiomyocytes** to act as a rate-responsive biological pacemaker and for future myocardial regeneration strategies.

; Animals; Animals, Newborn; Body Surface Potential Mapping; Cell Differentiation; Graft Survival; Heart Block--diagnosis--DI; Humans; Rats; Rats, Sprague-Dawley; Swine; **Treatment** Outcome

20/3,K/2 (Item 2 from file: 155)

17240446 PMID: 15319521

Beta-adrenergic and muscarinic modulation of human embryonic stem cell-derived cardiomyocytes.

Reppel Michael; Boettinger Cornelia; Hescheler Juergen

Institute of Neurophysiology, University of Cologne, Germany.

Cellular physiology and biochemistry - international journal of experimental cellular physiology, biochemistry, and pharmacology (Switzerland) 2004, 14 (4-6) p187-96, ISSN 1015-8987 Journal Code: 9113221

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

BACKGROUND: Embryonic stem cells provide the most promising tool for cell replacement **therapy** including transplantation of human embryonic stem (**hES**) cell- derived **cardiomyocytes** in the infarcted area of the heart. Here we provide data for **differentiation** of **cardiomyocytes** from□hES□ cells and firstly describe their hormonal modulation. METHODS: Using Micro-Electrode Arrays as a novel electrical mapping technique of beating **cardiomyocyte** clusters within whole **hES** cell aggregates, we were able to measure the field potential generation'and morphology changes during hormonal modulation. RESULTS: We found that isoproterenol provokes, similar to...

... stimulated with a higher EC50 value the slow field potential amplitude, FP(slow), indicating a stimulation of Ca2+ channels in ventricular-like ES cell-derived **cardiomyocytes** which is shown to be clearly independent from frequency modulation. In contrast, carbachol (10 microM) produced a transient negative chronotropic effect but had no effect...

... CONCLUSION: The Micro-Electrode system allows measurement of ionic channel modulation and chronotropic responsiveness in a pharmacological screening setup. Moreover, all our data indicate that **cardiomyocytes** derived from human embryonic stem cells exhibit a physiological response to the major hormones of the vegetative nervous system and might therefore serve as an...

20/3,K/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

16554720 PMID: 15280587
Generation of pluripotent stem cells **and their differentiation to the chondrocytic phenotype.**
Solchaga Luis A; Welter Jean F; Lennon Donald P; Caplan Arnold I
Department of Orthopedics, Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.
Methods in molecular medicine (United States) 2004, 100 p53-68, ISSN 1543-1894 Journal Code: 101123138
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Generation of pluripotent stem cells **and their differentiation to the chondrocytic phenotype.**
It is well documented that adult cartilage has minimal self-repair ability. Current methods for **treatment** of cartilage injury focus on the relief of pain and inflammation and have met with limited long-term success. In the forefront of new therapeutic...
... a very small percentage of the patient population.Our laboratory has focused on cartilage repair using progenitor cells and studied their differentiation into cartilage. Adult **mesenchymal stem** cells are an attractive candidate as progenitor cells for cartilage repair because of their documented osteogenic and chondrogenic potential, ease of harvest, and ease of...

...use will obviate the need for harvesting precious healthy cartilage from a patient to obtain autologous chondrocytes for transplantation. However, the need to induce chondrogenic **differentiation** in the **mesenchymal**

stem cells is superposed on other technical issues associated with cartilage repair; this adds a level of complexity over using mature chondrocytes.This chapter focuses on the methods involved in the isolation of human **mesenchymal stem** cells and their **differentiation** along the chondrogenic lineage. Although we have the technology to accomplish chondrogenic **differentiation** of stem cells, much is still to be learned regarding the regulatory mechanisms controlling the lineage transitions and maturation of the cartilaginous tissue.

Descriptors: *Cell Culture Techniques--methods--MT; *Chondrocytes --cytology--CY; *Mesenchymal Stem Cells--cytology--CY; * **Pluripotent Stem Cells** --cytology--CY; Biopsy, Needle; Bone Marrow Cells--cytology--CY; Cell Differentiation; Chondrocytes--metabolism--ME; Humans; Mesenchymal Stem Cells--drug effects--DE; Phenotype; **Pluripotent Stem Cells** --metabolism--ME; Tissue Engineering

20/3,K/4 (Item 4 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

15453144 PMID: 15304656

Nitric oxide facilitates cardiomyogenesis in mouse embryonic stem cells.

Kanno Shinichi; Kim Peter K M; Sallam Karim; Lei Jing; Billiar Timothy R; Shears Larry L

Department of Surgery, University of Pittsburgh School of Medicine, Pittsburgh, PA 15261, USA. shk34@pitt.edu

Proceedings of the National Academy of Sciences of the United States of America (United States) Aug 17 2004, 101 (33) p12277-81, ISSN 0027-8424 Journal Code: 7505876

Contract/Grant No.: GM 044100; GM; NIGMS; HL 066949; HL; NHLBI

Publishing Model Print-Electronic

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Stem cell **therapy** holds great promise for the replacement of damaged or dysfunctional myocardium. Nitric oxide (NO) has been shown to promote embryonic stem (ES) cell **differentiation** in other systems. We hypothesized that NO, through NO synthase gene transfer or exogenous NO exposure, would promote the **differentiation** of mouse ES cells into **cardiomyocytes** (CM). In our study, NO **treatment** increased both the number and the size of beating foci in embryoid body (EB) outgrowths. Within 2 weeks, 69% of the inducible NO synthase-transduced...

... 1% of the control ES cells. These data strongly support our hypothesis that mouse ES cells can be accelerated to differentiate into CM by NO **treatment** . NO may influence cardiac **differentiation** by both inducing a switch toward a cardiac phenotype and inducing apoptosis in cells not committed to cardiac **differentiation** .

Descriptors: *Myocytes, Cardiac--cytology--CY; *Myocytes, Cardiac--drug effects--DE; *Nitric Oxide--pharmacology--PD; * **Pluripotent Stem Cells** --cytology--CY; * **Pluripotent Stem Cells** --drug effects--DE...; drug effects--DE; Cell Differentiation--drug effects--DE; Cell Line; Gene Expression Regulation, Developmental--drug effects--DE; Mice; Microscopy, Electron; Myocytes, Cardiac--metabolism--ME; Phenotype; **Pluripotent Stem Cells** --metabolism--ME; RNA, Messenger--genetics--GE; RNA, Messenger --metabolism--ME

20/3,K/5 (Item 5 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

15194324 PMID: 14871274
Human embryonic stem cells: a potential source for cellular therapy .
Gerecht-Nir Sharon; Itskovitz-Eldor Joseph
Biotechnology Interdisciplinary Unit, Technion - Israel Institute of Technology, Haifa, Israel.
American journal of transplantation - official journal of the American Society of Transplantation and the American Society of Transplant Surgeons (Denmark) 2004, 4 Suppl 6 p51-7, ISSN 1600-6135 Journal Code: 100968638
Publishing Model Print
Document type: Journal Article; Review; Review, Tutorial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Human embryonic stem cells: a potential source for cellular therapy .
... may be treatable by transplantation of healthy cells. Such cells may be obtained by in vitro culture of embryonic stem cells, which are capable of **differentiating** into many cell types. This review discusses applicative approaches for the derivation, maintenance and safety of human embryonic stem (**hES**) cells as well as ethical concerns surrounding their possible source for cellular **therapy** . **hES** cells offer broad application in cellular **therapy** ; however, this review specifically emphasizes on cardiovascular repair, generation and characterization of **hES** cell-derived **cardiomyocytes** , vascular progenitors and **differentiation** of derivatives.
Descriptors: *Cardiomyopathies-- **therapy** --TH; *Cardiovascular System --embryology--EM; *Myocytes, Cardiac--cytology--CY; * **Pluripotent Stem Cells** --cytology--CY; *Stem Cell Transplantation

20/3,K/6 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

15188573 PMID: 14656930
Spontaneous cardiomyocyte differentiation **from adipose tissue stroma cells.**
Planat-Benard V; Menard C; Andre M; Puceat M; Perez A; Garcia-Verdugo J-M ; Penicaud L; Casteilla L
UMR 5018 UPS CNRS, IFR31, Research Institute 31, France.
Circulation research (United States) Feb 6 2004, 94 (2) p223-9, ISSN 1524-4571 Journal Code: 0047103
Publishing Model Print-Electronic; Comment in Circ Res. 2004 Feb 6;94(2) 132-4; Comment in PMID 14764646
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Spontaneous cardiomyocyte differentiation **from adipose tissue stroma cells.**
... the identification of a putative source of cardiomyocyte progenitors is of great interest to provide a usable model in vitro and new perspective in regenerative **therapy** . As adipose tissues were recently demonstrated to contain **pluripotent stem cells** , the emergence of cardiomyocyte

phenotype from adipose-derived cells was investigated. We demonstrated that rare beating cells with cardiomyocyte features could be identified after culture...

20/3,K/7 (Item 7 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14995425 PMID: 14504386
Nonhuman primate parthenogenetic stem cells.
Vrana Kent E; Hipp Jason D; Goss Ashley M; McCool Brian A; Riddle David R ; Walker Stephen J; Wettstein Peter J; Studer Lorenz P; Tabar Viviane; Cunniff Kerrianne; Chapman Karen; Vilner Lucy; West Michael D; Grant Kathleen A; Cibelli Jose B
Center for Neurobehavioral Study of Alcohol, Department of Physiology and Pharmacology, Wake Forest University School of Medicine, Winston-Salem, NC 27157, USA. kvrana@wfubmc.edu
Proceedings of the National Academy of Sciences of the United States of America (United States) Sep 30 2003, 100 Suppl 1 p11911-6, ISSN 0027-8424 Journal Code: 7505876
Publishing Model Print-Electronic; Erratum in Proc Natl Acad Sci U S A. 2004 Jan 13;101(2) 693
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... in vitro in an undifferentiated state for extended periods of time. Cyno-1 cells can be differentiated in vitro into dopaminergic and serotonergic neurons, contractile **cardiomyocyte** -like cells, smooth muscle, ciliated epithelia, and adipocytes. When Cyno-1 cells were injected into severe combined immunodeficient mice, teratomas with derivatives from all three...

... Cyno-1 cells assume a neural precursor phenotype (immunoreactive for nestin). However, these cells remain proliferative and express no functional ion channels. When transferred to **differentiation** conditions, the nestin-positive precursors assume neuronal and epithelial morphologies. Over time, these cells acquire electrophysiological characteristics of functional neurons (appearance of tetrodotoxin-sensitive, voltage-dependent sodium channels). These results suggest that stem cells derived from the parthenogenetically activated nonhuman primate egg provide a potential source for autologous cell **therapy** in the female and bypass the need for creating a competent embryo.
Descriptors: *Nerve Tissue Proteins; *Parthenogenesis--physiology--PH; * **Pluripotent Stem Cells** --cytology--CY...; MHC Class II; Intermediate Filament Proteins--metabolism--ME; Macaca fascicularis; Neurons--cytology --CY; Neurons--immunology--IM; Neurons--metabolism--ME; Parthenogenesis --genetics--GE; Parthenogenesis--immunology--IM; **Pluripotent Stem Cells** --immunology--IM; **Pluripotent Stem Cells** --metabolism--ME

20/3,K/8 (Item 8 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14859866 PMID: 12837285
Establishment of tendon-derived cell lines exhibiting pluripotent mesenchymal stem cell-like property.

Salingcarnboriboon R; Yoshitake H; Tsuji K; Obinata M; Amagasa T; Nifuji A; Noda M
Department of Molecular Pharmacology, Medical Research Institute, Tokyo Medical and Dental University, Tokyo, Japan.
Experimental cell research (United States) Jul 15 2003, 287 (2) p289-300, ISSN 0014-4827 Journal Code: 0373226
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... TT-D6) were established using transgenic mice harboring a temperature-sensitive mutant of SV40 large T antigen. Proliferation of these cells was significantly enhanced by **treatment** with bFGF and TGF-beta but not BMP2. Tendon phenotype-related genes such as those encoding scleraxis, Six1, EphA4, COMP, and type I collagen were...
... levels when examined by RT-PCR. TT-G11 and TT-E4 cells differentiated into either osteoblasts or adipocytes, respectively, when they were cultured in cognate **differentiation** medium. These observations indicated that the established tendon cell line possesses **mesenchymal stem** cell-like properties, suggesting the existence of **mesenchymal stem** cell in tendon tissue.
Descriptors: *Cell Line; *Mesoderm--cytology--CY; * **Pluripotent Stem Cells** --cytology--CY; *Tendons--cytology--CY

20/3,K/9 (Item 9 from file: 155)

14494075 PMID: 12439631
Generation of cardiomyocytes from embryonic stem cells experimental studies.
Sachinidis Agapios; Kolossov Eugen; Fleischmann Bernd K; Hescheler Jurgen
Department of Neurophysiology, University of Cologne, Germany. A.Sachindis@uni-koeln.de
Herz (Germany) Nov 2002, 27 (7) p589-97, ISSN 0340-9937 Journal Code: 7801231
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

BACKGROUND: Cardiomyopathy is characterized by the loss of functional **cardiomyocytes** resulting in heart failure. More recently, there is increasing evidence from animal studies that transplantation of **cardiomyocytes** may represent a valuable approach for the **treatment** of severe heart failure. DEVELOPMENT OF CARDIAC CELLS: **Treatment** of cardiovascular diseases using **cardiomyocytes** derived from embryonic stem cells prerequisites establishment of pure lineages of early embryonic **cardiomyocytes** from human embryonic stem cells. The development of cardiac cells from embryonic stem cells is regulated by several growth factors such as TGF-beta, IGF...

...a coactivator of the GATA-4 protein. The GATA-4 transcription factor and Nkx-2.5 are essential for heart development. In parallel to adult **cardiomyocytes** , embryonic stem cell-derived **cardiomyocytes** developmentally express cardiac specific proteins and ion channels.

GENERATION FROM EMBRYONIC STEM CELLS: Recently, it has been shown that pure **cardiomyocytes** can be generated from genetically manipulated embryonic stem cells. In order to achieve the selective cardiac **differentiation** of embryonic stem cells different culture conditions are currently tested to examine in the future the influence of different growth factors. However, although significant progress has been made in generating pure **cardiomyocytes** , further efforts are required to avoid possible immunological rejection of the engrafted **cardiomyocytes** . Thus, a main challenge in the future will be the establishment of pure lineages of **cardiomyocytes** derived from human embryonic stem cells.
...; Cardiomyoplasty; Cell Differentiation; Cell Lineage; Cell Transplantation; Cells, Cultured; Culture Media; Drosophila; Forecasting; Graft Rejection; Heart--embryology--EM; Humans; Mice; Mice, Knockout; Multipotent Stem Cells; **Pluripotent Stem Cells** ; Stem Cells--cytology --CY

20/3,K/10 (Item 10 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14431258 PMID: 12369782
Continuous inhibition of MAPK signaling promotes the early osteoblastic differentiation and mineralization of the extracellular matrix.
Higuchi Chikahisa; Myoui Akira; Hashimoto Nobuyuki; Kuriyama Kohji; Yoshioka Kiyoko; Yoshikawa Hideki; Itoh Kazuyuki
Department of Biology, Osaka Medical Center for Cancer and Cardiovascular Diseases, Japan.
Journal of bone and mineral research - the official journal of the American Society for Bone and Mineral Research (United States) Oct 2002, 17 (10) p1785-94, ISSN 0884-0431 Journal Code: 8610640
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

... in C2Cl2 pluripotent mesenchymal cells treated with recombinant human BMP-2 (rhBMP-2) and MC3T3-E1 preosteoblastic cells. ALP activity was synergistically increased by the **treatment** with a specific MEK-1 inhibitor PD98059 and rhBMP-2 in both cell lines. Twenty-five micromolar PD98059 promoted mineralization of ECM in rhBMP-2...
... while a constitutively active mutant of MEK-1 attenuated both of them. Together, our results indicated that BMP-2-induced mineralization of ECM of pluripotent **mesenchymal stem** cells and preosteoblastic cells could be controlled by a fine tuning of the MAPK signaling pathway. Further, MEK-1 inhibitors would be useful for the...
...Descriptors: PH; *Minerals--metabolism--ME; *Mitogen-Activated Protein Kinase Kinases--antagonists and inhibitors--AI; *Mitogen-Activated Protein Kinases--antagonists and inhibitors--AI; *Osteoblasts--drug effects--DE; * **Pluripotent Stem Cells** --drug effects--DE; *Protein-Serine-Threonine Kinases--antagonists and inhibitors--AI; *Transforming Growth Factor beta ...; Kinases--physiology--PH; Mitogen-Activated Protein Kinases--physiology --PH; Osteoblasts--cytology--CY; Osteoblasts--metabolism--ME; Osteocalcin --biosynthesis--BI; Osteocalcin--drug effects--DE; Osteocalcin--secretion --SE; **Pluripotent Stem Cells** --cytology--CY; Protein-Serine-Threonine Kinases--physiology--PH; RNA, Messenger--biosynthesis--BI; RNA, Messenger --genetics--GE; Rats; Recombinant Fusion Proteins--pharmacology--PD; Recombinant Fusion Proteins...

20/3,K/11 (Item 11 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14405901 PMID: 12242268
Characterization and enrichment of cardiomyocytes derived from human embryonic stem cells.
Xu Chunhui; Police Shailaja; Rao Namitha; Carpenter Melissa K
Geron Corporation, Menlo Park, Calif 94025, USA. cxu@geron.com
Circulation research (United States) Sep 20 2002, 91 (6) p501-8, ISSN 1524-4571 Journal Code: 0047103
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Cell replacement **therapy** is a promising approach for the **treatment** of cardiac diseases, but is challenged by a limited supply of appropriate cells. We have investigated whether functional **cardiomyocytes** can be efficiently generated from human embryonic stem (**hES**) cells. **Cardiomyocyte differentiation** was evaluated using 3 parent (H1, H7, and H9) **hES** cell lines and 2 clonal (H9.1 and H9.2) **hES** cell lines. All cell lines examined differentiated into **cardiomyocytes** , even after long-term culture (50 passages or approximately 260 population doublings). Upon **differentiation** , beating cells were observed after one week in **differentiation** conditions, increased in numbers with time, and could retain contractility for over 70 days. The beating cells expressed markers characteristic of **cardiomyocytes** , such as cardiac alpha-myosin heavy chain, cardiac troponin I and T, atrial natriuretic factor, and cardiac transcription factors GATA-4, Nkx2.5, and MEF-2. In addition, **cardiomyocyte differentiation** could be enhanced by **treatment** of cells with 5-aza-2'-deoxycytidine but not DMSO or retinoic acid. Furthermore, the differentiated cultures could be dissociated and enriched by Percoll density centrifugation to give a population containing 70% **cardiomyocytes** . The enriched population was proliferative and showed appropriate expression of **cardiomyocyte** markers. The extended replicative capacity of **hES** cells and the ability to differentiate and enrich for functional human **cardiomyocytes** warrant further development of these cells for clinical application in heart diseases.

20/3,K/12 (Item 12 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14231613 PMID: 12033727
Cardiomyocyte differentiation of mouse and human embryonic stem cells.
Mummery C; Ward D; van den Brink C E; Bird S D; Doevendans P A; Opthof T; Brutel de la Riviere A; Tertoolen L; van der Heyden M; Pera M
Hubrecht Laboratory, Utrecht, The Netherland. christin@niob.knaw.nl
Journal of anatomy (England) Mar 2002, 200 (Pt 3) p233-42, ISSN 0021-8782 Journal Code: 0137162
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Cardiomyocyte differentiation **of mouse and human embryonic stem cells.**

... and subsequent oxygen reperfusion initiates irreversible cell damage, eventually leading to widespread cell death and loss of function. Strategies to regenerate damaged cardiac tissue by **cardiomyocyte** transplantation may prevent or limit post-infarction cardiac failure. We are searching for methods for inducing **pluripotent stem cells** to differentiate into transplantable **cardiomyocytes** . We have already shown that an endoderm-like cell line induced the **differentiation** of embryonal carcinoma cells into immature cardiomyoctyes. Preliminary results show that human and mouse embryonic stem cells respond in a similar manner. This study presents initial characterization of these **cardiomyocytes** and the mouse myocardial infarction model in which we will test their ability to restore cardiac function.

Descriptors: *Cell Transplantation; *Embryo--cytology--CY; *Myocardial Infarction-- **therapy** --TH; *Myocardium--cytology--CY; *Stem Cells--cytology --CY

20/3,K/13 (Item 13 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

13666905 PMID: 11304456
Multilineage cells from human adipose tissue: implications for cell-based therapies.

Zuk P A; Zhu M; Mizuno H; Huang J; Futrell J W; Katz A J; Benhaim P; Lorenz H P; Hedrick M H

Laboratory for Regenerative Bioengineering and Repair, UCLA School of Medicine, Los Angeles, California, USA.

Tissue engineering (United States) Apr 2001, 7 (2) p211-28, ISSN 1076-3279 Journal Code: 9505538

Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Future cell-based therapies such as tissue engineering will benefit from a source of autologous **pluripotent stem cells** . For mesodermal tissue engineering, one such source of cells is the bone marrow stroma. The bone marrow compartment contains several cell populations, including mesenchymal stem cells (MSCs) that are capable of **differentiating** into adipogenic, osteogenic, chondrogenic, and myogenic cells. However, autologous bone marrow procurement has potential limitations. An alternate source of autologous adult stem cells that is...

; Adipose Tissue--cytology--CY; Animals; Apoptosis; Biological **Therapy** ; Cell Aging; Cell Differentiation; Cell Line; Chondrocytes--cytology--CY; Fibroblasts--cytology--CY; Flow Cytometry; Fluorescent Antibody Technique, Indirect; Humans; Immunohistochemistry; Lipectomy; Mesoderm--cytology--CY; Mesoderm...

20/3,K/14 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0015060026 BIOSIS NO.: 200400430815
Non-human primates are relevant models for evaluating the therapeutic

potential of somatic pluripotent stem cells
AUTHOR: Herodin F; Norol F; Drouet M
AUTHOR E-MAIL ADDRESS: fherodin@crssa.net
JOURNAL: Folia Primatologica 75 (3): p173 2004 2004
MEDIUM: print
CONFERENCE/MEETING: 14th Annual Meeting of the Societe Francophone de Primatologie Doue-la-Fontaine, France October 23-25, 2002; 20021023
SPONSOR: Societe Francophone de Primatologie
ISSN: 0015-5713
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Citation
LANGUAGE: English

Non-human primates are relevant models for evaluating the therapeutic potential of somatic pluripotent stem cells
DESCRIPTORS:
...ORGANISMS: PARTS ETC: blood and lymphatics, **differentiation** ; ...

...somatic **pluripotent stem cell** --
...DISEASES: heart disease, vascular disease, **therapy**

20/3,K/15 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0014760330 BIOSIS NO.: 200400141087
Integrative molecular and developmental biology of adult stem cells.
AUTHOR: Bunting Kevin D; Hawley Robert G (Reprint)
AUTHOR ADDRESS: Holland Laboratory, American Red Cross, 15601 Crabbs Branch Way, Rockville, MD, 20855, USA**USA
AUTHOR E-MAIL ADDRESS: hawleyr@usa.redcross.org
JOURNAL: Biology of the Cell (Paris) 95 (9): p563-578 December 2003 2003
MEDIUM: print
ISSN: 0248-4900
DOCUMENT TYPE: Article; Literature Review
RECORD TYPE: Abstract
LANGUAGE: English

...ABSTRACT: important for regeneration of several adult tissues. Recently, adult stem cells with very broad differentiation potential have been identified although whether they represent vestigial primitive **pluripotent stem cells** or products of extremely rare de-differentiation events involving tissue-specific stem cells is not known. Transdifferentiation of tissue-specific stem cells across lineage boundaries...
DESCRIPTORS:
...ORGANISMS: PARTS ETC: embryonic structure, **differentiation** ;
MISCELLANEOUS TERMS: ... **tissue regeneration** ;

20/3,K/16 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0014099977 BIOSIS NO.: 200300058696
Multi-lineage potential of human mesenchymal stem cells following clonal expansion.
AUTHOR: Halleux C; Sottile V; Gasser J A; Seuwen K (Reprint)
AUTHOR ADDRESS: Research, Novartis Pharma AG, CH-4002, Basel, Switzerland**

Switzerland
AUTHOR E-MAIL ADDRESS: klaus.seuwen@pharma.novartis.com
JOURNAL: Journal of Musculoskeletal and Neuronal Interactions 2 (1): p 71-76 September 2001 2001
MEDIUM: print
ISSN: 1108-7161 _(ISSN print)
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Bone marrow contains mesenchymal cells that can be isolated and grown in vitro. Using appropriate **treatment** protocols such cultures can be induced to differentiate to yield osteoblasts, adipocytes, and chondrocytes. However, previous experiments had not addressed the question whether single **pluripotent stem cells** exist and can give rise to these different cell lineages or whether bone marrow mesenchymal cell preparations represent a mixture of committed precursors. We have...
DESCRIPTORS:
...ORGANISMS: PARTS ETC: embryonic structure, **differentiation** , clone, self-renewal capacity, multi-lineage potential...

20/3,K/17 (Item 1 from file: 73)
DIALOG(R)File 73:EMBASE
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13072250 EMBASE No: 2005133913
Embryonic stem cells: Differentiation **into** cardiomyocytes□and□ **potential for heart repair and regeneration**
Kumar D.; Kamp T.J.; LeWinter M.M.
Dr. D. Kumar, Department of Medicine, University of Vermont, Colchester Research Facility, 208 S. Park Dr., Colchester, VT 05446 United States
AUTHOR EMAIL: Dinender.Kumar@uvm.edu
Coronary Artery Disease (CORON. ARTERY DIS.) (United Kingdom) 2005, 16/2 (111-116)
CODEN: CADIE ISSN: 0954-6928
DOCUMENT TYPE: Journal ; Review
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 58

Embryonic stem cells: Differentiation **into** cardiomyocytes□and□ **potential for heart repair and regeneration**
MEDICAL DESCRIPTORS:
*embryonic stem cell; *cell differentiation; *heart muscle cell; *muscle regeneration; *heart infarction-- **therapy** --th; *stem cell transplantation **pluripotent stem cell** ; apoptosis; cell death; heart muscle; cell type ; heart function; cell lineage; inner cell mass; heart failure --complication--co; heart failure-- **therapy** --th; human; nonhuman; review; priority journal

20/3,K/18 (Item 2 from file: 73)
DIALOG(R)File 73:EMBASE
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12737668 EMBASE No: 2004322438
Mesenchymal stem **/progenitor cells in human umbilical cord blood as support for ex vivo expansion of CD34SUP+ hematopoietic stem cells and for chondrogenic** differentiation
Wang J.-F.; Wang L.-J.; Wu Y.-F.; Xiang Y.; Xie C.-G.; Jia B.-B.;

Harrington J.; McNiece I.K.
J.-F. Wang, College of Life Sciences, Zhejiang University, No. 232, Wen San Road, Hangzhou, Zhejiang 310012 China
AUTHOR EMAIL: wjfu@zju.edu.cn
Haematologica (HAEMATOLOGICA) (Italy) 2004, 89/7 (837-844)
CODEN: HAEMA ISSN: 0390-6078
DOCUMENT TYPE: Journal ; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 39

Mesenchymal stem **/progenitor cells in human umbilical cord blood as support for ex vivo expansion of CD34SUP+ hematopoietic stem cells and for chondrogenic** differentiation

Background and Objectives. Human **mesenchymal stem** /progenitor cells (MSPC) ar pluripotent, being the precursors for marrow stroma, bone, cartilage, muscle and connective tissues. Although the presence of hematopoietic stem/progenitor cells...

...Methods. In this study, we examined the immunophenotype, the supporting function in relation to ex vivo expansion of hematopoietic stem progenitor cells and the chondrogenic **differentiation** of cultured cells with characteristics of MSPC from UCB. When UCB nucleated cells were isolated and 10SUP7 cells cultured in IMDM with 200/0 fetal...

...interleukin 6 and tumor necrosis factor alpha. UCB-derived MSPC cultured in chondrogenic media differentiated into chondrogenic cells. UCB-derived MSPC supported the proliferation and **differentiation** of CD34SUP+ cells from UCB in vitro. Interpretation and Conclusions. UCB-derived MSPC have the potential to support ex vivo expansion of HSPC and chondrogenic **differentiation** . UCB should not be regarded as medical waste. It can serve as an alternative source of **mesenchymal stem** cells and may provide a unique source of fetal cells for cellular and gene **therapy** .
MEDICAL DESCRIPTORS:
pluripotent stem cell ; bone cell; cartilage cell; muscle cell; connective tissue cell; immunophenotyping; ex vivo study; cell culture; fibroblast; cytokine production; cell proliferation; in vitro study; adoptive immunotherapy; cell based gene **therapy** ; fetus cell; human; controlled study; human cell; fetus; article

20/3,K/19 (Item 3 from file: 73)
DIALOG(R)File 73:EMBASE

12650710 EMBASE No: 2004233595
Butyric and retinoic mixed ester of hyaluronan: A novel differentiating glycoconjugate affording a high throughput of cardiogenesis in embryonic stem cells
Ventura C.; Maioli M.; Asara Y.; Santoni D.; Scarlata I.; Cantoni S.; Perbellini A.
C. Ventura, University of Bologna, S. Orsola-Malpighi Hospital, Institute of Cardiology, Via Massarenti N. 9, Bologna 40138 Italy
AUTHOR EMAIL: cvent@libero.it
Journal of Biological Chemistry (J. BIOL. CHEM.) (United States) 28 MAY 2004, 279/22 (23574-23579)
CODEN: JBCHA ISSN: 0021-9258
DOCUMENT TYPE: Journal ; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 31

...the process is incompletely understood. Achieving a high throughput of cardiogenesis from pluripotent cells is therefore a major requirement for future approaches in cardiac cell **therapy** . Here, we developed a novel ester of hyaluronan linked to both butyric and retinoic acid (HBR), coaxing pluripotent ES cells into a cardiogenic decision. In...
...effects occurred at the transcriptional level. HBR also primed the expression of cardiac-specific transcripts and highly enhanced the yield of spontaneously beating ES-derived **cardiomyocytes** . These results demonstrate the potential for chemically modifying the gene program of cardiac **differentiation** in ES cells without the aid of gene transfer technologies and may pave the way for novel approaches in tissue engineering and myocardial regeneration.
MEDICAL DESCRIPTORS:
heart muscle cell; **pluripotent stem cell** ; adoptive immunotherapy; gene expression regulation; tissue specificity; gene transfer; tissue engineering; cell regeneration; chemical modification; nonhuman; mouse; controlled study; animal cell; article; priority journal
?

Set	Items	Description
S1	9369	(HES OR HEG) OR ((PLURIPOTENT OR PRIMORDIAL OR PRIMITIVE) -(W) STEM (W) CELL?)
S2	1961	(MESENCHYMAL (W) STEM) (S) (DIFFERENTIATING OR DIFFERENTIA-TION)
S3	1470	(CARDIOMYOCYTE?) (S) (DIFFERENTIATING OR DIFFERENTIATION)
S4	29	S1 AND S2
S5	49	S1 AND S3
S6	0	S4 AND S5
S7	78	S4 OR S5
S8	2	S7 AND (CD90)
S9	2	RD (unique items)
S10	0	S7 AND (IMMUNOTOLERANT OR IMMUNOSUPPRESSANT OR TOLERANT OR TOLERIZING)
S11	47	RD S7 (unique items)
S12	2	S11 NOT PY>2000
S13	27	(MESENCHYMAL (W) STEM) (S) (IMMUNOSUPPRESSANTS OR TOLERIZI-NG OR TOLERANT OR TOLERANCE OR IMMUNOTOLERANT)
S14	14	RD (unique items)
S15	8	S14 AND (GRAFT? OR ALLOGRAFT? OR AUTOGRAFT?)
S16	8	RD (unique items)
S17	6	S14 NOT S16
S18	29	S7 AND (THERAPY OR TREATMENT OR (TISSUE (W) REGENERATION))
S19	19	RD (unique items)
S20	19	S19 NOT S14

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L15	(mesenchymal adj stem) same (immunosuppressant or tolerizing)	32	L15
L14	L12 not L13	49	L14
L13	L12 and CD90	3	L13
L12	L10 not L11	52	L12
L11	L10 and (allograft or autograft)	21	L11
L10	L7 and (immunotolerant or immunosuppressant or tolerant or tolerance or tolerizing)	73	L10
L9	L8 and L7	39	L9
L8	L4 and L6	236	L8
L7	L4 and L5	313	L7

L6	(cardiomyocyte) same (differentiating or differentiation)	636	L6
L5	(mesenchymal adj stem) same (differentiating or differentiation)	862	L5
L4	(hES or hEG) or ((pluripotent or primordial or primitive) adj stem)	1655357	L4

DB=EPAB; THES=ASSIGNEE; PLUR=YES; OP=AND

L3	WO-200244343-A2.did.	0	L3

DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES; OP=AND

L2	(Tolerizing adj allograft) same (stem adj cell)	2	L2
L1	Chiu-Choy-Pik.in.	9	L1

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